

EFFECT OF CLIMATE CHANGE AND VARIABILITY ON UPLAND

RICE YIELD IN LIRA DISTRICT UGANDA

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A THESIS SUBMITTED TO THE DIRECTORATE OF RESEARCH AND

GRADUATE TRAINING IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE AWARD OF A DEGREE OF MASTER OF

SCIENCE IN ENVIRONMENT AND NATURAL RESOURCES OF

MAKERERE UNIVERSITY

MAY 2017

Abstract

Rice has become a primary food source for the bigger part of the population of Lira district, even though its productivity still remains low in the face of growing demand. The crop is likely to be significantly affected by climate change and variability. This study evaluated the effect of climate change and variability on upland rice yield in Lira district, determined the historical trends in climate parameters (rainfall and minimum temperature and maximum temperature) from 1980 – 2010, and projected the effect of climate change on rice yield. Agricultural Production System simulator Model (APSIM) was used to simulate the effect of climate change on upland rice yield using two periods-mid (2040 – 2069 and end-(2070-2099) century for two Representative Concentration Pathways or RCPs: 4.5 and 8.5. Result from the study suggest that temperature is projected to increase with climate change. Temperature increases will range between + 1⁰C and 4⁰C. Rice yield is projected to increase with climate change in mid-century under RCP 4.5 scenario, except for RCP 8.5 in both mid and end-centuries where the majority of the models projected a decline in rice grain yield in both mid and end-centuries under RCP 8.5 scenario. The study recommends that in order to enhance rice yield in Lira district in the period under review,

effective adaption to climate change by upland rice farmers is crucial. The study well as intensification of upland rice in Lira district, as projected climate change may affect the crop yield.